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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,868	08/07/2002	Masahiro Saito	740675-41	5691

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EXAMINER	
JOHNSTON, PHILLIP A	

ART UNIT	PAPER NUMBER
2881	

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/069,868	SAITO ET AL.	
	Examiner	Art Unit	
	Phillip A Johnston	2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-9 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-9 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 07 August 2002 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Detailed Action

Claims Rejection – 35 U.S.C. 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,455,879 to Modavis.

Modavis (879) discloses in FIG. 1 an optical fiber 10, an end 13 of which is positioned in light receiving relationship with respect to laser diode 15. Fiber 10 has a circularly symmetrical core 11, and a cladding 12. End 13 is provided with anamorphic lens means 16 to facilitate the capture of light by core 11 and to direct away from the laser facet any light that reflects from the fiber endface. Anamorphic lens means 16, which is formed integrally with fiber 10, may be located about 3-6 μ from the laser diode.

FIGS. 2 and 3 show an embodiment in which lens means 16 consists of a wedge-shaped fiber microlens 21 on one end of fiber 10. The microlens includes a first pair of surfaces 22 and 23 that intersect at a line 24 that substantially bisects core

11. The microlens further includes surfaces 25 and 26 (2nd inclined surfaces) that intersect surfaces 22 and 23, respectively, at lines 27 and 28, respectively. The slopes of surfaces 22 and 23 are θ and the slopes of surfaces 25 and 26 are Φ, wherein Φ is greater than θ. The angles θ and Φ are measured with respect to a plane 29 perpendicular to fiber axis 30. Lines 27 and 28 of intersection of the first and second pairs of surfaces preferably intersect the core as shown in FIG. 3. Moreover, the area of surface 22 is preferably substantially equal to the area of surface 23. In other words, the central portion of lens 21 is preferably symmetrical about a plane containing axis 27 and line 24.

A fiber was formed having a double wedge lens wherein wedge angles θ and Φ were 15° and 44°, respectively. The "break point" (the region where the wedge angle changes) occurred within the core region 11 of fiber 10. That is, lines 27 and 28 intersected core 11. See Column 3, line 32-62; and Figures 2 and 3 below.

FIG. 2

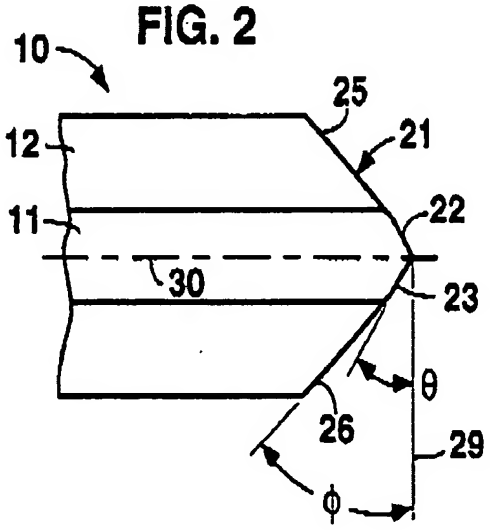
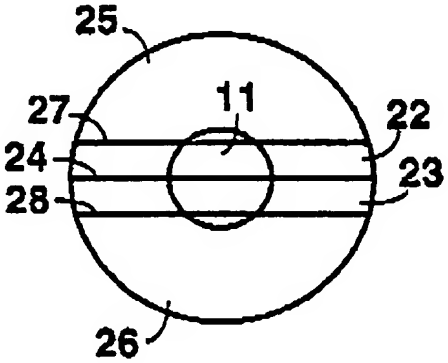


FIG. 3



Modavis (879) also discloses the anamorphic lens design illustrated in FIGS. 8 and 9 is easier to fabricate than the above described multiple angle lenses and has a coupling efficiency that can be larger than the efficiency of those lenses. This design consists of an optical fiber 51 having a cladding 53 and a core 52, the cross-section of the core in a plane perpendicular to the longitudinal fiber axis is an ellipse having a major and a minor axis. The end of the fiber is ground to form a wedge shaped microlens 54 that includes a surfaces 55 and 56 that intersect at a line 57 that lies on the major axis of the ellipse, i.e. line 57 substantially bisects the fiber core. See Column 5, line 10-20; and Figures 8 and 9 below.

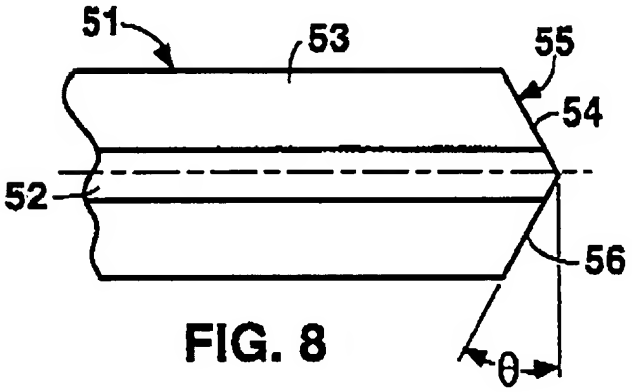


FIG. 8

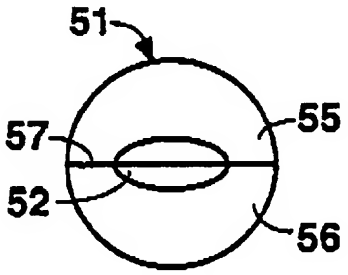


FIG. 9

Modavis (879) further discloses in FIG. 10, a system for coupling light from laser diode 72 to circularly symmetric single-mode field fiber 74. Source 72 emits a beam of light having an elliptical cross-section, the cross-section of the beam in a plane perpendicular to the beam axis being an ellipse having a major and a minor axis. The elliptical mode fiber (and thus the wedge-shaped microlens) is oriented with respect to the source such that light from source 72 is efficiently coupled to elliptical core fiber 51. Light propagating in elliptical mode fiber 73 can be efficiently coupled to circularly symmetric single-mode fiber 74. see Column 5, line 29-39.

It is implied herein that orienting the fiber with respect to the beam of light for efficiently coupling the fiber to the light beam in accordance with Modavis (879) above, is equivalent to "rotating the fiber axis to match the direction of travel of the centerline of the light beam", as recited in Claim 9.

Modavis (879) as applied above discloses the claimed invention except for the ratio of the curvature radii of the arcs being between 1.2 and 3.8; 1.8 and 2.4; 1.3 and 2.6; 1.6 and 1.9, as recited in Claims 5-8. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to grind the end of the fiber at various angles (curvature radii), to change the shape of the resultant ellipse's major and minor axes while attempting to maximize coupling efficiency, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Conclusion

3. Any inquiry concerning this communication or earlier communications should be directed to Phillip Johnston whose telephone number is (703) 305-7022. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiners supervisor John Lee can be reached at (703) 308-4116. The fax phone numbers are (703) 872-9318 for regular response activity, and (703) 872-9319 for after-final responses. In addition the customer service fax number is (703) 872- 9317.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

PJ

January 23, 2004